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ance to the bibliographer, but is hardly creditable to the spirit of scientific accuracy and fairness which American science has done so much to promote.

C. H. M.

The Mechanics of Pumping Machinery. By J. WEISBACH and G. HERRMANN. Authorized Translation by K. P. DAHLSTROM, M. E. Macmillan & Co. 1897. Pp. 300. 8vo. \$3.75.

This work is a translation of the latest division of the Weisbach cyclopedic treatise on Engineering Mechanics. It is intended mainly as a text-book, and for use in advanced courses of instruction in engineering schools; while it is also thought that it may have value to the designer and constructor in his daily work. The translator has added some matter exhibiting the progress made in this field since the original publication of the book in Germany, and in this he has had the aid of Professor Klein's notes. The work includes discussions of early forms of water elevators and hydraulic machinery, of the theory and action of pumps, both reciprocating and rotary, and an account of other less well-known apparatus for raising water. The reputation of the author, Professor Herrmann, the distinguished technician, is a guarantee of the reliability of these discussions, and this guarantee is confirmed by examination of the pages of this translation, in which these discussions have been faithfully brought over into the English and in satisfactory form.

The illustrations are numerous and helpful; the text is by them rendered admirably lucid. In general appearance and style the volume corresponds to its predecessors in the same series and, without being elegant, is creditably made up. Its price is moderate and it will probably find its place in the library of all who possess its companion volumes.

R. H. T.

SCIENTIFIC JOURNALS.

THE JOURNAL OF COMPARATIVE NEUROLOGY.
VOL. VII., NO. 1.

THE issue for April contains three memoirs, besides editorials and reviews. B. F. Kingsbury writes on 'The Structure and Morphology

of the Oblongata in Fishes,' from the standpoint of the components of the nerve roots. Some 17 species of cartilaginous and bony fishes were examined, their nerve roots analyzed and the components traced to their respective centers, along the lines laid down by Strong's recent work on the cranial nerves of Amphibia. It will be remembered that Strong reduces the sensory nerves of the head to three types: (1) the general cutaneous system, innervating the skin and terminating in the 'ascending' or spinal fifth tract of the medulla; (2) the acustico-lateral system, innervating the lateral line canals and the ear and terminating in the tuberculum acusticum of the medulla; (3) the fasciculus communis system, innervating taste buds, certain specialized end-organs of the skin not belonging to the lateral line system, and the mucous and visceral surfaces in general, and terminating in the fasciculus communis of the medulla, or the cellular aggregates associated with it (lobus vagi of fishes).

Now in the fishes examined, Dr. Kingsbury finds these components present, and arranged in essentially the same way as in the Amphibia. The varied and apparently anomalous conditions found in the medulla of the fishes, which have so long puzzled the morphologists, have been reduced for the most part to variations in the relative development of these three factors. The lobus trigemini of the catfishes is regarded as a specialized portion of the fasciculus communis system. These conclusions have been reached by a study of the central relations only of the nerve roots. It may be added that researches now in progress at Columbia University, upon the peripheral distribution of these roots in the bony fishes, have fully substantiated most of his discoveries.

Dr. Kingsbury follows with a second paper entitled 'The Encephalic Evaginations in Ganoids.' The new and important points are two: (1) The presence in the adult *Amia* of the first epiphysal vesicle of Hill and its innervation from the left Habena; and (2) the existence in *Amia* and *Lepidosteus* of lateral cephalic and caudal extensions of cavity caudad of the velum transversum of Kupffer, constituting considerable diverticula.

'The Early Development of the Epiphysis and